USSR

CHERTKOV, V., Pravda, 13 Sep 73, p 6

"cart" stopped, the dolphin would back up and stop under it, as if it understood it was being photographed.

"Nonetheless," Alexyev remarks, "we cannot speak of the existence of dolphin 'intelligence' and dolphin 'civilization.' After all, these hopes do not have a scientific basis and are not confirmed by factual data. But experiments with dolphins are continuing and sometimes they bring unexpected results in other areas. Everyone knows that dolphins are outstanding swimmers. Well, the cyclic waves spread along their bodies in exactly the same way they do with women who are swimming."

"In other words, there is a certain boihydrodynamic resemblance here?"

"Absolutely right. We noticed this when we were conducting experiments with medium-sized dolphins and when we followed the movements of 10 swimmers using an underwater camera. Both women and dolphins have fluid body contours, the magnitude of height times speed is the same, and the locomotive muscles are under the layer of fat cells...

We are learning more and more about the life of the dolphins -- our friends and, possibly, when man begins real development of the riches of the World Ocean, our irreplaceable helpers.

8/8

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CHEMICAL STABILIZATION OF HYDROCRACKING DISTILLATES -U-

AUTHOR-(04)-EYGENSON, A.S., STEKHUN, A.I., SKLYAR, I.M., CHERTKOV, YA.B.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(2), 1-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PURIFICATION, IR SPECTRUM, SPECTROSCOPIC ANALYSIS, OPTIC PROPERTY, PETROLEUM HYDROCRACKING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1117 STEP NO--UR/0065/70/015/002/0001/0004

CIRC ACCESSION NO--AP0054024

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054024

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PURIFICATION OF A HYDROCRACKING DISTILLATE (58.3PERCENT PARAFFINIC NAPTHENIC AND 31.8 AND 9.9PERCENT MONO AND BICYCLIC AROMATIC HYDROCARBONS) WITH 10PERCENT BY VOL. OF FRESH 86PERCENT H SUB2 SO SUB4 AND ALTERNATIVELY WITH 10PERCENT BY VOL. OF SPENT H SUB 2 SO SUB4 FROM ALKYLATION PROCESSES RESULTED IN REDNS. IN: ACIDITY FROM 5.5 TO 1.8 AND 1.2 MG KOH-100 ML, S CONTENT FROM 0.54 TO 0.32 AND 0.34PERCENT, IODINE NO. FROM 14.7 TO 4.4 AND 3.6 G I-100 G, TAR CONTENT FROM 61.0 TO 7.2 AND 7.6 MG-100 ML, N CONTENT FROM 0.128PERCENT (0.090PERCENT N BASES) TO 0.0028 AND 0.0024PERCENT (0.00011 AND 0/0.00012PERCENT N BASES), AND STABILITY AS MEASURED BY REDNS. IN OPTICAL DENSITY FROM 1.6 TO 0.054 AND 0.075 TAU BEFORE AND FROM 1.85 TO 0.149 AND 0.320 TAU AFTER HEATING 2 HR AT 140DEGREES IN THE PRESENCE OF CU. GROUP HYDROCARBON COMPN. WAS ALMOST UNCHANGED. REDNS. IN IODINE NO. REFLECTED, NOT REDUCED UNSATD. HYDROCARBON CONTENT, BUT REDUCED HETEROCYCLIC COMPD. CONTENT, WHICH WAS CONFIRMED BY IR SPECTRAL ANAL. OF THE EXTS. WHEN THE VOL. RATIOS WERE REDUCED TO 1:50 AND 1:40, RESP., ALL THE CHANGES WERE SMALLER. THE NONHYDROCARBON MIXTS. IN 3.8PERCENT YIELD BY THIS METHOD CONTAINED 6.58PERCENT S, 3.6PERCENT N, AND 3.49PERCENT O.

UNCLASSIFIED

CHERTHOV, YA B.

An account by A. A. Guryev "The Results of a Conference on the Kinetics & Chemistry of Oxidation of Hydrocarbons in the Liquid Phase," the conference on oxidation of hydrocarbon discussed the initiation of oxidation processes by radioactivity & the oxidation of hydrocarbons under the action of different types of radiation. The dual range of interest of the conference which dealt both with initiation by radioactivity and initiation by catalysts was mentioned. The following papers were presented:

SO: CIA, FDD Sum 1155, 11 Dec. 56, Confidential.

Reports on the oxidation of crude petroleum and of commercial petroleum products occupied a prominent place at the conference. Thus, Ya. B. Chertkov and V. N. Zrelov presented a scheme which describes processes occuring during the autoxidation of keresene in storage at moderate temperatures. These investigators had isolated and analyzed the products of the oxidation of kerosene. They recommended methods whereby kerosene which is stable as far as the formation of resins is concerned can be obtained.

Acc. Nr: AP0047392 Abstracting Service: GEOPHYSICAL ABST. 5/70 Ref. Code: 4R0065

CHERTKOV Ya B.

91892t Mass-spectrometric study of petroleum sulfides of 170–310° fractions of Arlan petroleum. Khmel'nitskii, R. A.; Brodskii, E. S.; Chertkov, Ya. B.; Spirkin, V. G. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 55–7 (Russ). The sulfides were sepd. by selective extn. with an aq. H_2SO_4 soln. (Chertkov, Ya. B.; Spirkin, V. G.; Demishev, V. N., 1967). Their group compn. was detd. with a MKh-1303 spectrometer at an accelerating voltage of 2kV, ionizing-electron energy 50 eV, temp. of the ion source, analyzer, and inlet system 250°. The main sulfide fraction contained thioalkanes 6.4, alkylthiocyclanes 45.0, alkylthiobicyclanes 24.9, alkylthiotricyclanes 12.8, alkylcycloalkylsulfides 0.7, thiophenes 3.8, paraffinic-naphthenic hydrocarbons 4.3, and C_nH_n, indan, and Tetralin derivs. ≤2.5 mole %. The characteristics and compn. of the sulfides are tabulated. GGJR

1/1

REEL/FRAME
19790918

USSR UDC 577.391:612.119:599.32

CHERTKOV, K. S., and KHRAMCHENKOVA, S. P., Institute of Biophysics, Ministry of Health USSR, Msocow

"Comparison of the Effects of Short-Term and Prolonged Irradiation in Equal Sublethal Doses on Hemopoiesis in Mice"

Moscow, Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 77-84

Abstract: A comparative study was made of the pathogenic and recovery processes in cell composition in the bone marrow, spleen, thymus, and blood of mice following gamma-irradiation in short-term (27-39 sec) and prolonged (23.5 hrs) 400 r doses. The results showed that neither form of irradiation is lethal; however, substantial changes in cell composition were observed in the blood, and the number of nucleated cells decreased in lymphoid and hemopoietic organs. Cell number was affected in three phases: disruption (3 days at most); relative stability, achieved at different times and to varying degrees in different organs; and complete recovery within 3 weeks. Only 2.3% of nucleated cells in the femur retained their colony-forming capacity ½ hour after prolonged irradiation, then noticeably increased. Following short-term irradiation, the number of cells continued to decrease for 48 hours. The relation of number of cells to length of exposure can be 1/2

USSR

CHERTKOV, K. S., and KHRAMCHENKOVA, S. P., Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 77-84

expressed as exponential or power functions: 1G Y= 2.1292+0.8681 lg t for prolonged irradiation, and lg Y= 1.7328+1.6418 lg t for short-term irradiation, where Y is the number of colony-forming cells in femoral bone marrow, determined t days following irradiation.

2/2

USSR UDC 616.9-053.2-084.47-06-091+615.371/.372.065

LEVENBUK, I. S., CHEBOTAREVA, S. V., and CHERTKOVA, F. A., Control Institute of Biomedical Preparations imeni Tarasevich

"Clinical and Anatomical Analysis of Some Postvaccinal Complications in Children"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 55-59

Abstract: Study of the case histories, autopsy findings, and results of histological examinations of 20 children under 3-1/2 years of age who died after receiving inoculations of associated whooping cough -- diphtheria -- tetanus vaccines, diphtheria-tetanus or diphtheria toxoids showed that most of them had been vaccinated against a background of some chronic or acute disease (bronchitis, enterocolitis, pneumonia, etc.). Death occurred within 10 hours to 2 days in 15 children, within 7 to 13 days in four, and almost immediately in one as a result of anaphylactic shock. Death was generally preceded by symptoms of encephalopathy. In three cases where the presence of prevaccination disease could not be determined, there were references in the case histories to constitutional anomalies, including allergic diathesis and spasmophilia.
1/1

USSR

UDC 615.919"598.127.011.5.074:543.544

POGUDA, A. A., CHERTKOVA, F. A., and GOLSHMID, V. K., State Control Institute of Medical and ~~Biological Preparations~~ imeni Tarasevich, and Moscow Scientific Research Institute of Vaccines and Sera

"Composition of Viper Venom as Determined by Column Chromatography"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 7, 1971, pp 45-47

Abstract: Fractionation of Vipera lebetina venom on Sephadex G-100 revealed two protein peaks. The lethal factor and coagulase were associated with the first peak, hemolysin with the second, and hyaluronidase with both. However, fractionation of the venom on Sephadex G-200 resulted in the separation of all four factors. Besides the main molecular forms, it revealed additional fractions of lethal, hyaluronidase, and hemolytic activity. When ion-exchange chromatography on DEAE-cellulose was used, the lethal factor, coagulase, and hyaluronidase could not be separated. Hemolysin was obtained, but when injected intravenously into mice it failed to kill any of the animals or produce noticeable pathological changes.

1/1

USSR UDC: 519.2

CHERTOK, D. M.

"Concerning the Behavior of a Very Simple Piecewise-Linear Dynamic System With Statistical Control"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 238-241 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V90 by M. Benderskiy)

Translation: The author considers a system which is described by the equation

$$\dot{x} + \lambda_i x = c_i [a(t) + b(t)]. \qquad (1)$$

where i is the number of the linearity interval $[r_{i-1}, r_i]$ on the phase line, λ_i, c_i are constants, a(t) and b(t) are independent random piecewise-constant controlling and disturbing actions which vary over short time intervals μ and M respectively

$$\frac{M}{\mu} \gg 1, \quad |a(t) + b(t)| = |\sigma(t)| < 1. \qquad (2)$$

1/2

USSR

CHERTOK, D. M., Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967, "Nauka", 1973, pp 238-241

The controlling action does not change if the inequality $|x(t) \leqslant n$ is satisfied.

The author determines the average time of search $T(x)$, i. e. the mean time of return of the system from the point $x(0) = x$, $|x| > n$ to a given region $|x| \leqslant n$ on the phase line.

Let $x_k = x(t_k)$, where $t_k = t_0 + k\mu$. In virtue of the fact that $a(t)$ and $b(t)$ are statistically independent and piecewise-constant, (2) implies that

$$x_{k+1} = f(x_k, \sigma(t_k))$$

$$x_1, x_2, x_3, \ldots$$

and the sequence $x_1, x_2, x_3, \ldots$ is a Markov sequence. This means that an equation can be got for $T(x)$ which is solved approximately by the asymptotic methods developed for equations with a small parameter at the highest derivative.

2/2

1/3 036 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--POLARIZATION OF METER WAVELENGTH RADIO EMISSION OBSERVED IN REFLECTED LIGHT, POLARIZATION OF METER SOLAR RADIO EMISSION OBSERVED IN

AUTHOR-(02)-FORMICHEV, V.V., CHERTOK, I.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ASTRONOMICHESKIY ZHURNAL, VOL 47, NR 2, 1970, PP 322-328

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--SOLAR RADIO EMISSION, SOLAR RADIATION BURST, SOLAR FLARE, LIGHT REFLECTION, SOLAR CORONA, SECOND HARMONIC, LIGHT POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0247 STEP NO--UR/0033/70/047/002/0322/0328

CIRC ACCESSION NO--AP0127846

UNCLASSIFIED

2/3 036 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127846

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METER SOLAR RADIO EMISSION OBSERVED IN REFLECTED LIGHT WITH THE REFLECTION OF THE ORDINARY AND EXTRAORDINARY WAVES FROM CORRESPONDING CORONAL LAYERS WAS INVESTIGATED. IT WAS FOUND THAT FOR TYPE II AND TYPE III BURSTS HAVING A HARMONIC STRUCTURE ONE OF THE PECULIARITIES IS THE POSSIBILITY OF RADIO EMISSION POLARIZATION IN THE SECOND HARMONIC. THE SIGN OF THIS POLARIZATION CAN CORRESPOND TO WAVES OF BOTH THE ORDINARY AND EXTRAORDINARY TYPE AND THE DEGREE OF POLARIZATION CAN CHANGE FROM BURST TO BURST IN A RATHER BROAD RANGE. THERE CAN BE CASES OF THE ABSENCE OF POLARIZATION IN THE SECOND HARMONIC FOR BURSTS OF TYPES II AND III. IF IT IS TAKEN INTO ACCOUNG THAT RADIO EMISSION OF THE FUNDAMENTAL TONE IN TYPE II BURSTS IS UMPOLARIZED AND IN ADDITION, WITH THE MAGNETIC FIELD STRENGTHS CHARACTERISTIC OF THE REGIONS WHERE TYPE II BURSTS ARE GENERATED, THE DEGREE OF POLARIZATION OF REFLECTED RADIO EMISSION CAN ASSUME ONLY RELATIVELY LOW VALUES, THE REGISTRY OF TYPE II BURSTS IN THE MENTIONED RANGE APPEARS NATURAL. THE SITUTATION FOR REGISTRY OF POLARIZATION IN THE SECOND HARMONIC TYPE II BURSTS BECOMES MORE FAVORABLE WITH TRANSITION TO HIGH FREQUENCIES; IT CAN THEN BE EXPECTED THAT THE RADIO EMISSION IN SOME BURSTS WILL HAVE APPRECIABLE POLARIZATION OF THE ORDINARY AND EXTRAORDINARY TYPES. IN THE REGISTRY OF TYPE II AND TYPE III BURSTS IN THE COMPLEX OF PHENOMENA ASSOCIATED WITH ONE FLARE THE POLARIZATION CHARACTERISTICS OF THE SECOND HARMONICS OF BURSTS AT THE FREQUENCIES WHERE THEY ARE OBSERVED JOINTLY CAN NEVERTHELESS DIFFER CONSIDERABLY.

UNCLASSIFIED

USSR

UDC: 621.791.008.1

CHERTOV, I.M.

"Scientific Conference Dedicated to the Centennial of the Birth of Ye. O. Paton"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 74-75

Abstract: A scientific conference was held 5-7 March 1970 at the Kiev Polytechnic Institute, marking the 100th anniversary of the birth of Ye. O. Paton. Participating in it were 200 representatives from 55 institutions of higher learning, 24 scientific research organizations and 12 plants. Twenty reports were presented at the conference, which dealt with various aspects of the development of welding techniques and equipment in the USSR. G.A. Nikolayev (Moscow Higher Technical School imeni N. E. Bauman) reported that more than 2,000 welding engineers graduate annually in the USSR. Ya. D. Livshits (Kiev Highway Institute) discussed the training of engineering and scientific personnel in bridge construction. B.E. Kasatkin (Kiev Polytechnic Institute) described the training and research conducted at the Institute's Chair of Welding. G.L. Petrov and V. P. Demyantsevich described the training of personnel and scientific research in welding conducted at the Leningrad Polytechnic Institute. V.V. Stepanov discussed the development of welding equipment and welding, surfacing, and cutting methods at the Chair of Welding of the Ural Polytechnic Institute imeni S.M. Kirov. Ye. M. Kuzmak and K.A. Konyukova (Moscow Institute of the Petrochemical and Gas Industry) discussed the present state of weldability of high-strength heat-hardened steels.

1/1

USSR

UDC 666.113/117

KLEMENTOVA, M. P., KIRICHENKO, L. F., ASLANOVA, K. S., MYASNIKOV, A. A., CHERNOV, V. M., VYSOTSKIY, Z. A., Institute of Physical Chemistry, imeni L. V. Pisarzhevskiy, Ukr. Academy of Sciences; and All-Union Scientific-Research Institute of Fiberglass and Fibers

"Effect of Hydrothermal Treatment on the Texture of Silicon Fibers"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 44, No 8, 1971, pp 1725-1730

Abstract: The texture of glass fibers strongly depends on their origin natural or basaltic glass. The texture of silicon glass is dealt with here, as it is affected by hydrothermal processing. A number of physical features are taken into account.

It is shown that with hydrothermal processing of fine-pore silicon fibers at 100-[illegible]°, and autoclaving for 3-24 hours, increase in either of these factors will secure a substantial reduction in the size of micropores and in the specific surface of the fiber,

1/2

USSR

KLIMENTOVA, YU. P., et al, Zhurnal Prikladnoy Khimii, Vol 44, No 8, 1971, pp 1725-1730

which means also that the volume of sorption space falls off. Hydrothermal processing at 200°C will produce a good number of ultrapores in silicon fibers, and these will be accessible to the water molecules, though not to those of benzene.

Precise data on textural characteristics of silicon fibers accompany the paper.

2/2

USSR UDC: 681.335.5

CHERTOVSKIY, V. D.

"Transfer Functions of Multipliers"

Izv. Leningr. elektrotekhn. in-ta (News of the Leningrad Electrotechnical Institute), 1969, vyp. 81, pp 36-39 (from RZh-Avtomatika, Telemekhanika i Vychislitelnaya Tekhnika, No 8, Aug 70, Abstract No 8B110)

Translation: In this article a procedure is proposed for defining the transfer functions for each of the control inputs of a multiplication circuit using the Laplace transformation for the input and output voltages. An example is presented which illustrates the indicated approach for the case in which the rate of variation of the voltage at one of the inputs greatly exceeds the rate of variation of the second input voltage. The transfer function for one of the inputs can be approximated by the function which describes the inertialess link; and for the other input, the first-order aperiodic link. With a six-fold difference in rate of variation of the input voltages, the approximation error does not exceed six decibels. There is one illustration and a three-entry bibliography.

1/1

USSR

NOSKOV, M. M., OKUN', G. L., and CHERVA, YE. G.

"Multichannel Device for Linking a Computer With Telegraph Communication Channels"

USSR Authors' Certificate No 379923, Cl. G 06f 3/02, filed 28 Dec 70, published 20 Apr 73 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, 1973, p 144)

Abstract: The device consists of interlink units, in each of which the control circuit is connected to a teletype receiver and transmitter and input and output registers connected to the computer. The distinctive feature is that, to eliminate the loss of inputted information, an interlock circuit is inserted between the teletype transmitter and the control circuit, and an additional output of the control circuit is connected to the corresponding computer inputs directly and through the interrupt-cause register.

1/1

YEGOROV, YU. I., et al., Optimal'n. planir. razvitiya i razmeshch. otrasley prom-sti, Part 1, Novosibirsk, 1972, pp 174-186

of a more general form are also considered; in particular, those which are the natural generalization of fixed supplementary payments. The specific example of the formalization of the logical condition for the problem of optimizing the construction and functioning of a new mine is given.

2/2

USSR

UDC: 681.327

OKUN', G. L. CHERVA, Ye. G., KRESTOVSKAYA, V. F.

"Device for Making Electornic Computer Compatible With Telegraph Communications Line"

USSR Authors' Certificate No 249089, Filed 15 April 1968, Published 4 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B266P, by N. V.)

Translation: This device contains a buffer register, code converter, punch register, telegraph apparatus register, and control device. It differs from known devices in that in order to eliminate redundancy in the transmission of alphanumeric information to the telegraph communications line, the device contains a service combination register, differentiating circuits, and a flip-flop determining the order of reading of service or information combinations. The outputs of the service combination register are connected to the inputs of the differentiating circuits. The outputs of these circuits are connected to the input of the reading order flip-flops for service or information combinations, the outputs of which are connected to the potential inputs of the tubes reading the service and information combinations. One illustration.

1/1

USSR

UDC: 51

CHERVAK, Yu. Yu.

"Some Computational Aspects of Discrete Linear Programming"

Moscow, Mat. metody resheniya ekon. zadach--sbornik (Mathematical Methods of Solving Economics Problems--collection of works), No 3, "Nauka", 1972, pp 133-137 (from RZh-Kibernetika, No 5, May 73, abstract No 5V654 by Yu. Finkel'shteyn)

Translation: The author studies the discrete linear programming problem

$$x_0 = \sum_{j=1}^{n} c_j x_j \to \max, \quad (1)$$

$$\sum_{j=1}^{n} a_{ij} x_j = b_i, \quad i = 1, 2, \ldots, m, \quad (2)$$

$$x_j \geq 0, \quad j = 1, 2, \ldots, n, \quad (3)$$

$$x_j \in \{A_{j1}, A_{j2}, \ldots, A_{jq_j}\}, \quad j = 1, 2, \ldots, n_1 \ (n_1 \leq n). \quad (4)$$

Here

$$0 = A_{j1} < A_{j2} < \ldots < A_{jq_j}, \quad j = 1, 2, \ldots, n_1. \quad (5)$$

1/3

USSR

CHERVAK, Yu. Yu., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 133-137

Dalton and Lewellyn (RZhMat, 1967, 1V307) proposed a truncation algorithm for solution of problem (1)-(4) which is a generalization of the second algorithm of Gomori from a partially integral to a partially discrete problem. The author points out that the Dalton and Lewellyn truncation can be derived by using the method of forming truncations for nonconvex problems -- see theorem 2.1 from chapter 8 of the monograph by A. A. Korbut and Yu. Finkel'shteyn (RZhMat, 1969, 12V435K) -- if the union of two sets defined by the inequalities $x_i \leqslant A_{i,v}$ and $x_i \geqslant A_{i,v+1}$ is taken as the nonconvex closed set D in the additional condition $(x_1, x_2, \ldots, x_n) \in D$ of the problem. Dalton and Lewellyn showed that the variable x_i with respect to which the truncation is constructed, after adding the truncation to the conditions of the problem and carrying out one iteration of the dual simplex method, takes on a discrete-definite value. The purpose of this paper is to construct a modification of the Dalton-Lewellyn algorithm such that the variable x_i takes on a discrete-definite value as a result of a higher iteration of the algorithm (i. e. after completion of the entire procedure of reoptimization done after introducing the truncation).

2/3

USSR

CHERVAK, Yu. Yu., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 133-137

Such a modification is constructed. Although use of the truncations proposed in this modification requires carrying out three higher iterations (two of them are due to solution of two auxiliary problems), the author assumes on each step of the truncation method that in the general case the use of these truncations should reduce the number of higher truncations and ensure wider possibilities for the method of truncations in solving discrete problems of linear programming. The results of computer experiments confirm this (a comparison was made with the Dalton and Lewellyn algorithm).

3/3

USSR

CHERVAK, Yu. Yu. UDC: 51

"Determining an Optimum Whole-Number Convex Linear Combination of Points. General Discrete Case"

Moscow, Mat. metody resheniya ekon. zadach--sbornik (Mathematical Methods of Solving Economics Problems--collection of works), No 3, "Nauka", 1972, pp 130-132 (from RZh-Kibernetika, No 5, May 73, abstract No 5V650 by Yu. Finkel'shteyn)

Translation: It is required to find a convex linear combination $(x_1, x_2, \ldots, x_n)$ of points $(a_{1i}, a_{2i}, \ldots, a_{ni})$, $i=1, 2, \ldots, m$, such that the function

$$x_0 = \sum_{j=1}^{n} c_j x_j \qquad (1)$$

reaches a maximum under condition that

$$x_j \text{ is an integer } j=1, 2, \ldots, n_1, \; n_1 \leq n. \qquad (2)$$

The symbol V denotes a polyhedron which is a convex shell of points

1/4

USSR

CHERVAK, Yu. Yu., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 130-132

$A_i=(a_{0i}, a_{1i}, \ldots, a_{ni})$, where a_{0i} is the value of function (1) at point $(a_{1i}, \ldots, a_{ni})$. Let us assume that the vertex A_s of polyhedron V satisfying the condition

$$a_{0s}=\max_i a_{0i}, \qquad (4)$$

has an integer value of the coordinate a_{ts} $(t<n_1)$. From the set of values $\{1, 2, \ldots, s-1, s+1, \ldots, m\}$ of the index i two subsets G_1 and G_2 are isolated: G_1 contains those values of i for which $a_{ts}<a_{ti}$ and the interval (a_{ts}, a_{ti}) contains a whole number; G_2 contains those values of i for which $a_{ts}>a_{ti}$ and the interval (a_{ti}, a_{ts}) contains a whole number. Then points A_{m+i}

$$A_{m+i}=(1-\lambda_i)A_s+\lambda_i A_i, \quad i\in G_1\cup G_2, \qquad (5)$$

are introduced where the values of λ_i are determined from relations $(1-\lambda_i)a_{ts}+\lambda_i a_{ti}=]a_{ts}[$ for $i\in G_1$, $(1-\lambda_i)a_{ts}+\lambda_i a_{ti}=[a_{ts}]$ for $i\in G_2$. $[a_{ts}]$ is the integral part of a_{ts} (the greatest integer not greater than a_{ts}), $]a_{ts}[$ is the least whole number not less than a_{ts}. The set V' of all possible points of the form

2/4